

Leica

PHOTOGRAPHY





Leica

PHOTOGRAPHY®

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COVER

Gjon Mili

This Tuscan landscape was photographed on the "164th kilometer from Rome on the road to Sienna" in the late afternoon. Leica M3 with 90mm Elmarit and UVa filter; Kodachrome.

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◀ INSIDE COVER

Jo Moore

"Movement: Major and Minor," aside from its effectiveness as a photograph, shows that the 21mm Super-Angulon is more than just a special-purpose lens. Miss Moore made this photograph during a regular assignment for the Mason City (Ia.) Globe-Gazette. The camera was a Leica IIIf, the film Kodak Tri-X, the exposure f/8-11 at 1/30th.

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The editors are happy to consider original articles on photography with the Leica and photographs taken with Leica cameras and lenses. All manuscripts and photographs should be accompanied by stamped, self-addressed return labels.

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one-man show

HORST H. BAUMANN photojournalist



Coal Miners, West Germany

Carnival ►

For many years, German photography has been doubly famous. It has always had the technical perfection of a scientific instrument — and all the off-handed spontaneity of a formal garden.

But time brings all things, including changes in German photography.

In the vanguard of the image-breakers is 30-year-old Horst H. Baumann, who breathes life, motion and personal insight into his photographs while retaining the solid technical achievements for which his fellow Germans are so justly recognized.

Baumann's talent for the aesthetic side of photography comes as somewhat of a surprise to anyone who speaks with him before having seen any of his pictures. For here is a photographer without pretensions, without mannerisms, without gimmicks. Without, in short, the trappings beloved by many "artists" in the field.

But he is not, however, without enthusiasms, insight and a point of view! Baumann is knowledgeable not only in photography but also in the graphic arts which ultimately bring photography to its audi-





Fencing Match

Actress ►

Good Friday Procession, Spain





VICTORIA

ALL
SEATS

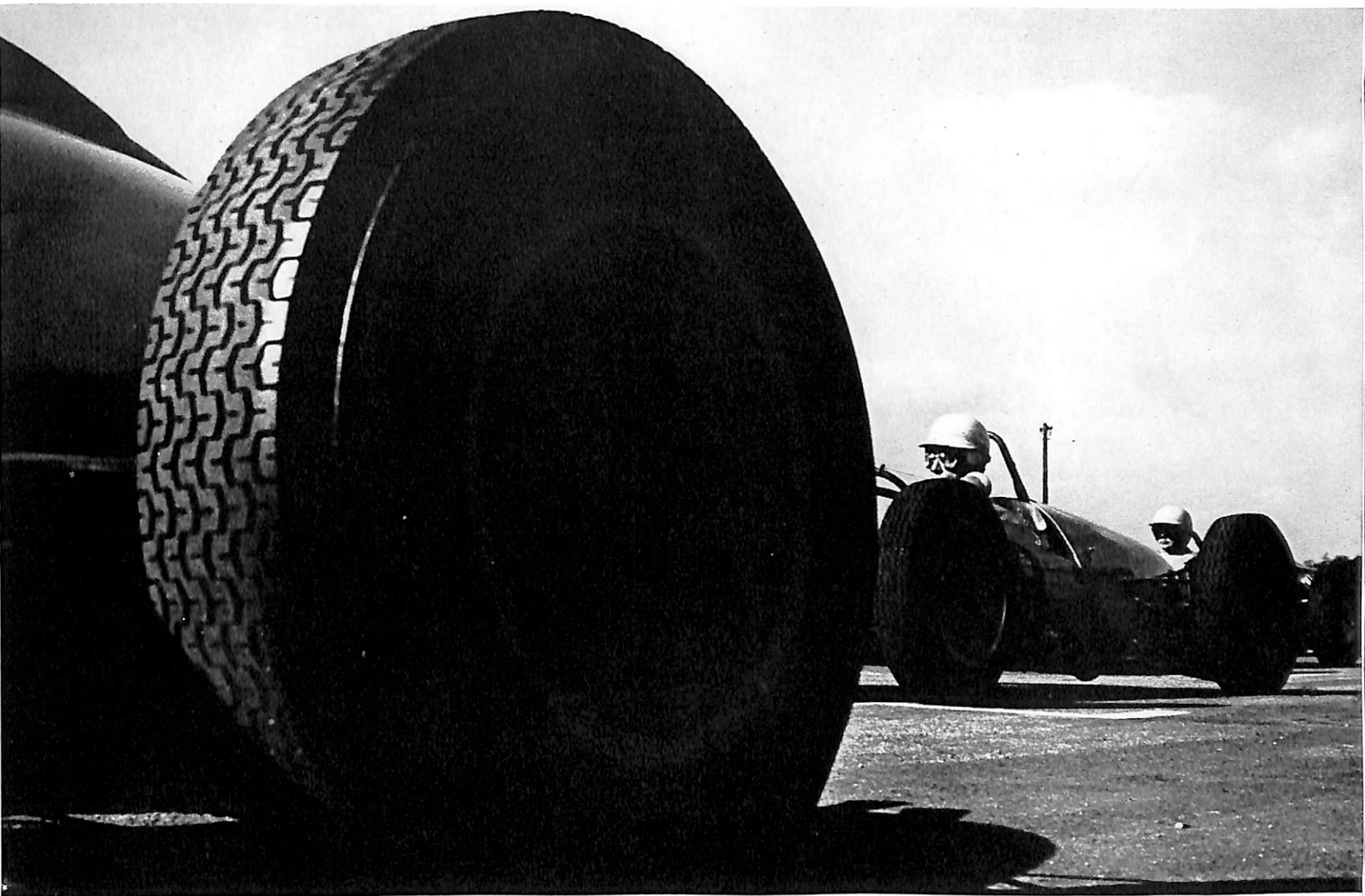
\$20

CHILDREN

UNDER 12 YEARS

90¢





Stirling Moss

◀ **Ticket Booth, New York City**

Ballet School (Overleaf)

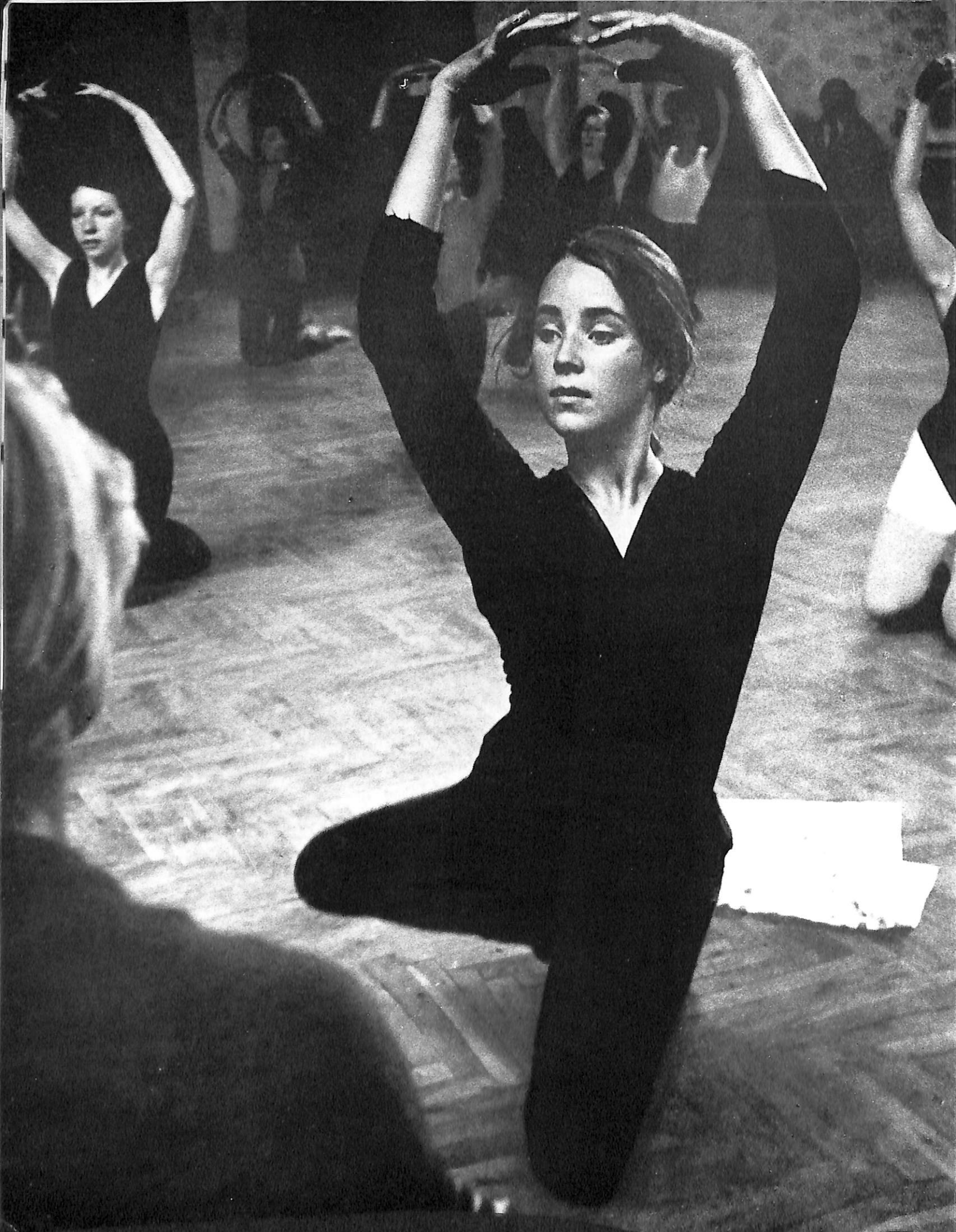
ence. His approach to assignments is businesslike and practical. Yet, the pictures he delivers have clearly been made by Horst Baumann, formed by his own reactions, synthesized in his brain and no one else's.

Obviously, his directness of manner conceals what can only be a complex and receptive personality. And with complexity comes versatility, making the young German at home with nearly any kind of assignment. Industrial? His industrial photographs have been internationally exhibited. Road-racing photos? A particular love of Baumann's, his racing pictures have appeared not only in magazines, but also in the form of a calendar. Currently they are being gathered into a book to be called "The New Gladiators." Advertising pictures? Yes! Photo-essays? Much of his income is from "Twen," a leading German picture magazine for which he does picture stories.

His honest, unsentimental and clear-eyed attitudes toward the business of photography serve him well in the art of photography. His pictures exhibit the same characteristics. But, in addition, they reflect his strong feeling for design, for the play of light and shadow, for the significant, storytelling detail.

His color photographs gain from the added dimension without losing any of the strengths shown in his black-and-whites. He uses color not like a matador's cape, to attract attention, but rather like a conductor's baton, to give pace, point and emphasis to his images.

Horst H. Baumann is one of a breed new to German photography, who are shaking that once rather stodgy craft into a new awareness of its own potential. To an impeccable technique they are adding a large measure of alertness, sympathy, and introspection. The results of this combination are formidable.



focusing on...

recent books

Magic With The Colour Camera, edited by Walter Boje, published by Thames and Hudson, 30 Bloomsbury St., London, W.C. 1, England. 134pp, 90 full-color plates. This is a large and handsome book containing the work of eight European photographers — much of it done with the Leica. All photos are in color and are beautifully reproduced in gravure.

In addition to his photographs, each photographer has contributed a brief text about his aims and methods. Translated by F. Bradley, the texts are helpful, not only in interpreting the photographer to his viewers, but also in causing the reader to examine his own methods and motives for making color pictures.

It would be nice to say that all the photos are as masterly as the reproduction given to them. But, since the photographers are admittedly experimenting with the color medium, there is a fair percentage of work that misses the mark, in our opinion. We felt that Horst Baumann's section "Steel" was the most successful, and also found many exciting images in the work of Boje, and Fritz Fenzl. This book gives an interesting, although not necessarily representative look at contemporary color photography abroad.

Man Ray Portraits presents 65 studies of the famous and near-famous in the world of art and literature in the Paris of the '20's. L. Fritz Gruber, the moving spirit behind the Photokina photographic expositions, has chosen the portraits and written the introduction to this 138-page book. Man Ray himself has added comments to each picture. The text of our copy is in French, but simple enough not to trouble anyone who has made it through third-year exams.

The appeal of the work will be greatest to those who remember (or are interested in) the slightly unreal-seeming era in which these portraits were made. But Leicamen of all ages will enjoy it, as well, although the pictures are not necessarily Leica-made. The photographic style, while always interesting, is in some cases dated. For instance, in many instances, Man Ray has used solarization. At the time, this technique was bold and experimental. Today, however, its charm has a wistful quality. Many of the more straightforward pictures are masterly, however. And the faces, the wonderful faces! Young Salvatore Dali and Ernest Hemingway. And Miro, Henry Miller, Aldous Huxley, Brancusi, Matisse and scores more. And do you remember that Gertrude Stein looked a little like Jimmy Durante being played by Peter Falk? Available from Editions Prisma, 26 Rue Desbordes-Valmore, Paris 16e, France.



mural-sized photos

When you visit the World's Fair in New York, you can see a good sample of Leica performance at the U.S. Pavilion. At the display of the National Science Foundation, there are two photos, each six feet by 11 feet in size.

They were made with a Leica specifically for this exhibit by Miss Evon Streetman of Tallahassee, Fla. She had originally planned to use a large-format camera for the job, but someone suggested, half in jest, (considering the final print size) that she try the Leica for the job. Adventurously, but still cautiously planning to back up the Leica work with a larger camera, Miss Streetman did use the Leica. But she reports, "After about six shots, . . . I had forgotten the large camera and was shooting fiendishly with the Leica." After showing her clients the proof prints, "They were delighted with the results. They were delighted with Leica, and I was delighted with both."

The photo above shows the size of the final print, in comparison to fairgoers. A second print, of another picture, appears on the back of the one visible in the photo above.

Another Leica picture at the World's Fair was featured in a two-page spread in *Popular Photography* for July. It is on exhibit at the Kodak pavilion, and is one of the winners in Kodak's International Color Competition. The picture was made from a surfboard, by Dr. Don James, a California dentist and surfer, and shows two surfboard riders under the curling rim of an enormous wave. Dr. James encloses his Leica IIIa in a Plexiglass housing which he designed especially for this work.

anatomy of slide projection

many factors affect results

Have you ever listened to a fine stereo record played on cheap playback equipment? Something missing, wasn't there?

A comparable loss of quality takes place when you project a technically perfect color slide on poor projection equipment. For projection is a complex operation involving various components. Any one of them, should it be less than satisfactory, will cause the screen image to be unsatisfactory.

Consider, for a moment, some of the things that affect the brilliance and resolution of a projected screen image:

1. technical quality of the slide
2. flatness of the slide in the film gate
3. slide-mounting
4. projector lens quality
5. condenser matched to lens focal length
6. screen type
7. screen alignment

Not all are equally important, but if any is less than the best, projection quality will suffer.

slide quality

This, of course, is the foundation of projection quality. Without it, nothing helps. Your camera lens is the product of much time and money spent on research and quality control. It produces a piercingly sharp image when properly focused.

At the same time, your camera's film channel has been manufactured with exquisite care to insure that the film is held flat and in exactly the proper plane, within a tiny fraction of a millimeter, to register faithfully the image produced by the lens.

To do their work properly, camera and lens must be held absolutely steady during exposure. If this seems an elementary consideration, remember that a magnification of more than 33X is involved when you project a transparency onto a 50-inch screen. Slight camera movement, undetectable without magnification, can spoil critical sharpness completely when the image is enlarged.

Exposure affects definition, too. Overexposure can cause graininess which robs the transparency of detail, even when silver is replaced by dyes in processing.

So, both tripod and exposure meter can contribute to the success of a slide show, even before the first picture is taken.

flatness of the slide

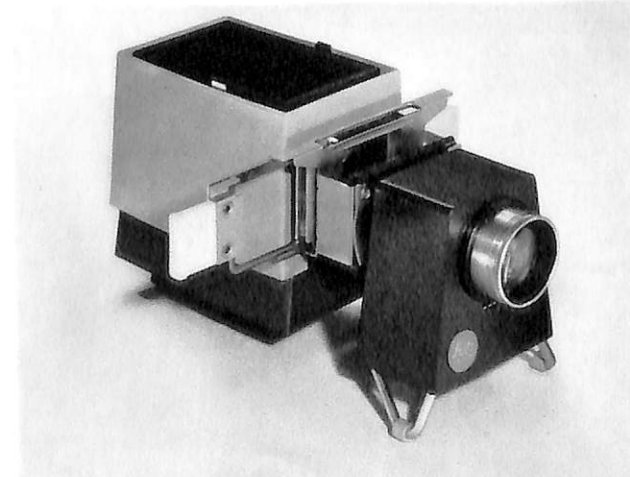
Another enemy of the screen-image quality is the physical flatness (or, rather, the lack of it) of the slide itself in the film gate during projection. A good projection lens will give optimum results only when the film is flat in the plane of focus, as it was in the camera at the time of exposure.

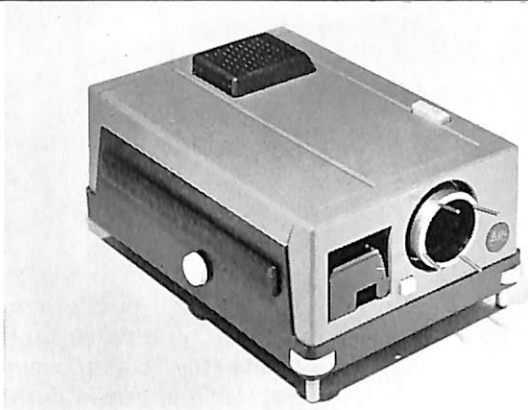
Almost everyone who has projected a cardboard-mounted slide has seen it "pop" annoyingly out of focus. This happens when the film takes on a curve as a result of expansion from being heated and dehydrated during projection. Actually (please excuse!) it isn't the heat, it's the humidity. That is, the amount of moisture the film and base are carrying when they reach the projection gate determines the amount of popping. The amount of heat determines how fast the popping occurs. Such popping

LONG-BASE PRADO "Auditorium '500'" minimizes vibration when lenses of 200mm or more are used. It accepts bulbs to 750W.



TINY PRADIX PROJECTOR is inexpensive yet has choice of lenses of four focal lengths for varied projection distances.





PRADOVIT WITH 50MM LENS can be used to project wide-screen slide shows in the living room. Slides should be bound in glass.

can be minimized, however, by pre-heating and drying of the slides in the projector, through a blower or convection air currents, by low-voltage projectors which generate little heat and by the inclusion of heat filtering glass in the optical system.

But even with these precautions, the slide cannot be prevented from heating up. If other heat sources were eliminated, the transparency would still rise in temperature because the light passing through it is changed to heat by absorption as the colors of the slide subtract wavelengths from the white projector beam.

Glass-binding your slides, however, will not only prevent the slide from jumping out of focus suddenly during projection, but will also protect it to a great extent from moisture and dust. And it will insure optimum edge-to-edge sharpness and illumination in the screen image.

slide mounting

Once you have seen the satisfaction that bound slides add to a show, however, you will never settle for anything less. Besides, modern slide-mounting equipment has taken the work out of protecting transparencies and turned it into a fast and easy procedure.

Flat transparencies are so important in producing accurate, detail-filled screen images that much research has been put into winning the "battle of the bulge." The Eastman Kodak Company, for instance, offers a special slide-mounting service which laminates the emulsion side of the film to a single piece of glass which is then encased in a metal-and-plastic mount. This not only keeps the slide flat, but also avoids the problems of Newton's Rings formation and moisture condensation. It is, however, a rather costly procedure. The charge is \$1.50 to \$1.00 per slide, depending on the quantities involved.

Far less expensive, however, and offering virtually equal convenience and protection, are conventional slide binders. These sandwich the transparency between two thin sheets of glass in, usually, a metal-and-plastic mount. An example of this type of mount is the line of Perrot binders offered by E. Leitz, Inc.

The problem of Newton's Rings, which appear on the screen as irregular, varicolored patterns, can be



PRADOVIT FA 500 has fast optics, automatic features, remote control of focus and magazine travel, and various accessories.

solved best by using specially-treated glasses in the binders. Their microscopically-etched surfaces prevent the slide from making contact with the glass in the way that produces Newton's Rings.

Another preventive is thin metal masks which are bound in with the slide when regular, untreated glasses are used.

projector lens quality

It should go almost without saying that a projector lens must approach the excellence of a camera lens if it is to bring out the detail which the latter has put into a slide. Otherwise, the screen image will be degraded and the superb quality of the camera lens wasted.

A high-aperture projection lens, consistent with fine image quality, is also desirable. The difference in screen illumination produced by an f 2.8 and an f 3.5 lens with a bulb of given wattage is more than 50 per cent. The f/2.8 provides more brilliance. This means that a projector with such a lens will give satisfactory brightness at projection distances greater than one with the slower lens.

Conversely, it means that a projector with an f 2.8 lens will perform as well as one with a f 3.5 lens while using a bulb of lower wattage than needed for the slower model with a resulting reduction in heat.

condensers

The location of projector lens elements within the mount varies according to the focal length of the lens. And the bundle of light rays produced by the aspherical condenser within the lamp housing must be beamed properly into the lens elements. Otherwise, light and screen brightness are lost when a lens of one focal length is substituted for a longer or shorter one.

Thus, for fullest efficiency, a field condenser designed for a lens of specific focal length or group of focal lengths is required.

screens

The old-fashioned glass-beaded screen has its virtues, but high resolution isn't one of them. Nor is a wide viewing angle. Its pebbly surface, even in recent, improved models, simply cannot resolve a sharply-



PROJECTOR TABLE minimizes need for tilting.

drawn image as well as a matte-surfaced screen can. Furthermore, while a glass-beaded screen gives a brilliant image, it is limited to a narrow angle around the projector-beam axis. The image loses brilliance quickly as it is viewed progressively further from the axis.

Lenticular screens attempt to combine the virtues of both matte and glass-beaded types. That is, they produce both a bright image and one which stays bright over a considerable viewing angle. But they still lack the ability to resolve detail as fine as that produced by a matte surface.

The only shortcoming of the matte-surfaced screen is relatively minor when good projection equipment is used. The matte screen, since it bounces the image back to the viewer evenly in every direction, provides a wide viewing area with little light fall-off at its edges. So, it does not provide as bright an image as other surfaces do over a narrow area. But a projector which features high light out-put through fast, well-corrected lenses easily solves the minor problem of reduced brightness. In return, the matte screen produces a sharp, clean, detail-filled image which looks bright over a wide viewing angle.

screen alignment

Often ignored as a factor in good projection, but important to best results is the matter of screen alignment. Ideally, the screen surface should be at

PLATFORM locks to tripod, holds projector.



right angles to the projector beam axis in all directions. A small deviation from this is unimportant, but if too great an angle exists, the screen image will suffer. If the projector axis is tipped up or down too much while the screen stays vertical, the screen image will "keystone," becoming wider at the top or bottom than it is at the other end. A gross horizontal misalignment will produce a picture that is taller at one end than it is at the other.

If the misalignment is severe enough, it will not be possible to have all parts of the image in sharp focus at once, since one part of the screen will be farther from the focal plane of the projector than the other.

So, use care when aligning the screen and projector. Checking by eye and by examining the screen image are usually accurate enough for practical purposes. Use a table which holds the projector high enough so that it does not need much elevation of the beam to center the image on the screen. Either a special projection table or a tripod with elevator shaft and projector table accessory solve this problem nicely.

added pleasures

It's apparent that successful projection is a collaboration among all those concerned with the photographic process — from the film manufacturer to the maker of the screen. And the men who design and make the projector play a key role. For a good projector can take you far beyond the confines of a living-room slide show.

A projector which can accommodate lenses of varying focal lengths for instance, is also at home in a large auditorium. And one which has available a projection lens as short as 35mm or 50mm can be used for wide-screen projection to create breathtaking realism in your slide. A projector which accepts micro-projection and micro-film reading accessories has virtually unlimited uses in the fields of science and industry.

extension of camera

Because a slide can be no better than the projector which images it on the screen, Leitz projectors are designed to be an integral part of the Leica System, with emphasis on high quality and versatility. The more advanced models accept all of the accessories described above for maximum versatility. And even the simplest and least costly has available for it a number of crisp, fast lenses of varying focal lengths to fit it for many projection situations. All models are made to complement the optical and mechanical quality of the Leica itself.



WILLIAM WILLIS, 70, was captain, navigator, crew and expedition photographer aboard the raft "Age Unlimited." Injury ended trip.

alone across the Pacific / *George Spelvin*

Leica records raft journey

Late in 1963, across a wave-washed coral reef off the Samoan island of Upolu, a large raft, its broken rudder fishtailing helplessly, bumped and scraped into the safety of a lagoon. On its deck were a sun-blackened, white-bearded man of 70 and his two companions, a pair of sea-going cats. Once in calm waters, the man lowered the anchor and a square mainsail bearing the legend "Age Unlimited," and began to feed the cats and himself. Behind him lay more than four months' and 7,450 miles' sailing across the largest ocean in the world.

William Willis, adventurer, writer, and lecturer, had just broken the world's record for the longest intentional single-handed voyage on a raft.* This had been set in 1954 by a 115-day, 6,700-mile journey from Callao, Peru, to Pago Pago. The record setter: William Willis, age 61.

A compulsion to test himself, to experience whatever rigors the world has to offer, is characteristic of the venturesome Willis. In his time, he has been seaman, prospector, fisherman, longshoreman and oilfield worker. In later years, he has somewhat de-

fensively, but so far successfully taken on the entire Pacific Ocean single-handedly, just to prove that age need not confine a man to an easychair.

Willis' latest ocean trip aboard the 32-by-20-foot "Age Unlimited," however, gave the lie to the name. Pacific. It began with a sub-oceanic earthquake which nearly capsized the raft off the coast of Peru, and continued through 130 days of the worst weather in the memory of captains who regularly make the run to Australia. The raft's original destination was Australia, some 10,000 miles from Peru. But the stress of the heavy weather and seas cracked the connecting rods of the rudder after only 12 days at sea. For the next 118 days, at frequent intervals, Willis was forced to repair these rods with wood splints and fishing line. These constant repairs, necessarily made overside in the water, eventually led to his serious injury (an old hernia re-opened as he struggled with the rudder) and the end of the journey short of its original goal.

Along with rudder repairs, the master of the "Age Unlimited" had single-handedly to tend to mainsail.

*Guinness Book of Records, Oct. 1963

jib and mizzen as well as his compass and navigation.

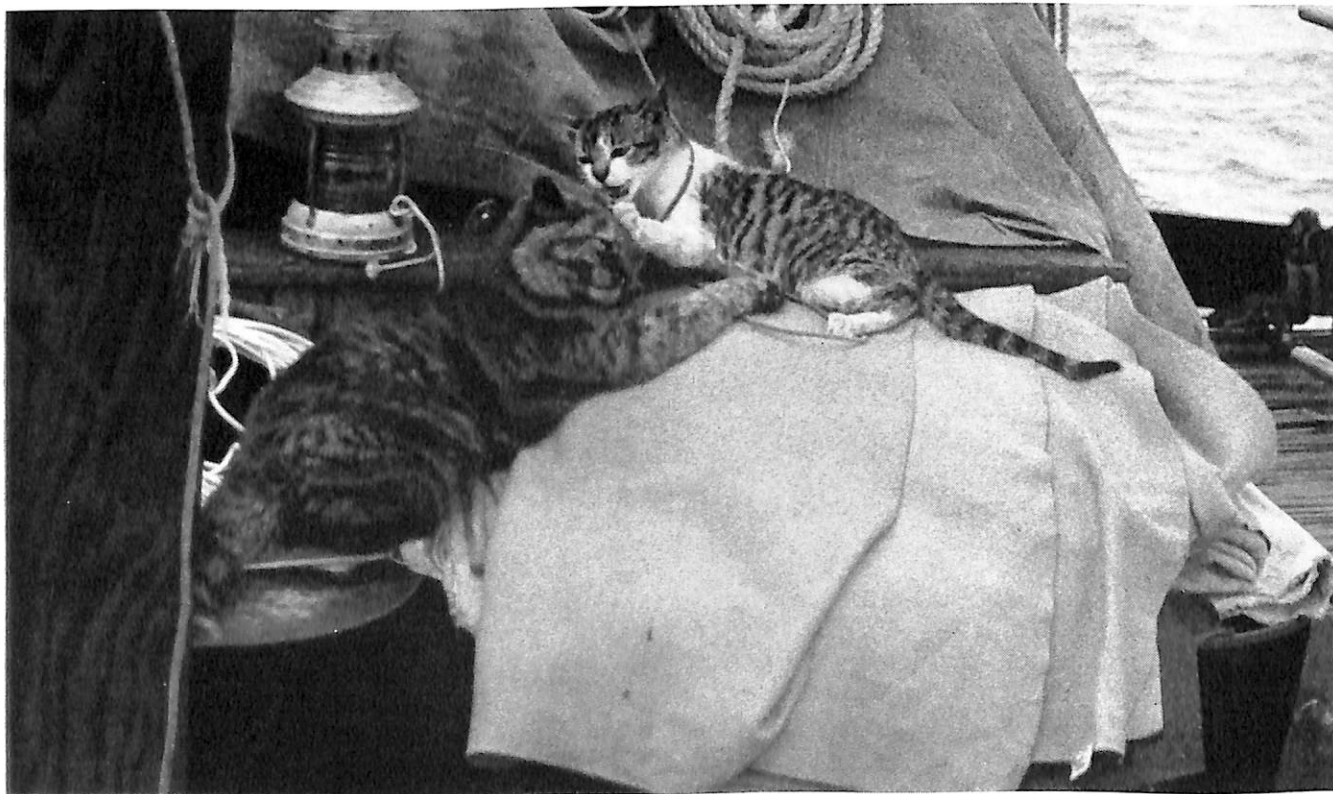
Although his raft was well-stocked with food and carried water for a 250-day voyage, Willis depended on the sea for protein. And, in fishing for dolphins, he had to contend with the ever-present sharks. Many times he drew aboard the raft only a bloody dolphin head — the rest of the fish having disappeared into the bellies of marauding sharks.

Sharks were also a menace to the man himself when he was overside working on the rudder. A shield

which had leaped on deck attempting to escape the attacks of dolphins. After several days of getting their sea legs, they proved to be good sailors and good companions, both to Willis and to one another, for the entire trip.

repeat performance

Willis' fantastic raft trip last year was, of course, an encore. In 1954, on a slightly smaller raft, the "Seven Little Sisters," he made a 115-day, 6,700-



KIKI AND AUSSIE became good sailors, helped both Willis and one another to pass the 130-days' time on raft. Cats often wrestled.

of split bamboo, lashed to the stern of the raft, provided some protection, although sharks came so close, Willis could hear them thrashing about. He soon discovered another way to keep sharks away. Catching one on a fishing line, he hauled it aboard, then shot it. The carcass of the shark, hanging from the stern in the water near where he wished to work, seemed to scare off other sharks — at least those of the same genus.

Willis' companions — Aussie, a Peruvian ranch cat and KiKi, an alumna of the New York Humane Society, dined on both canned pet food and flying fish

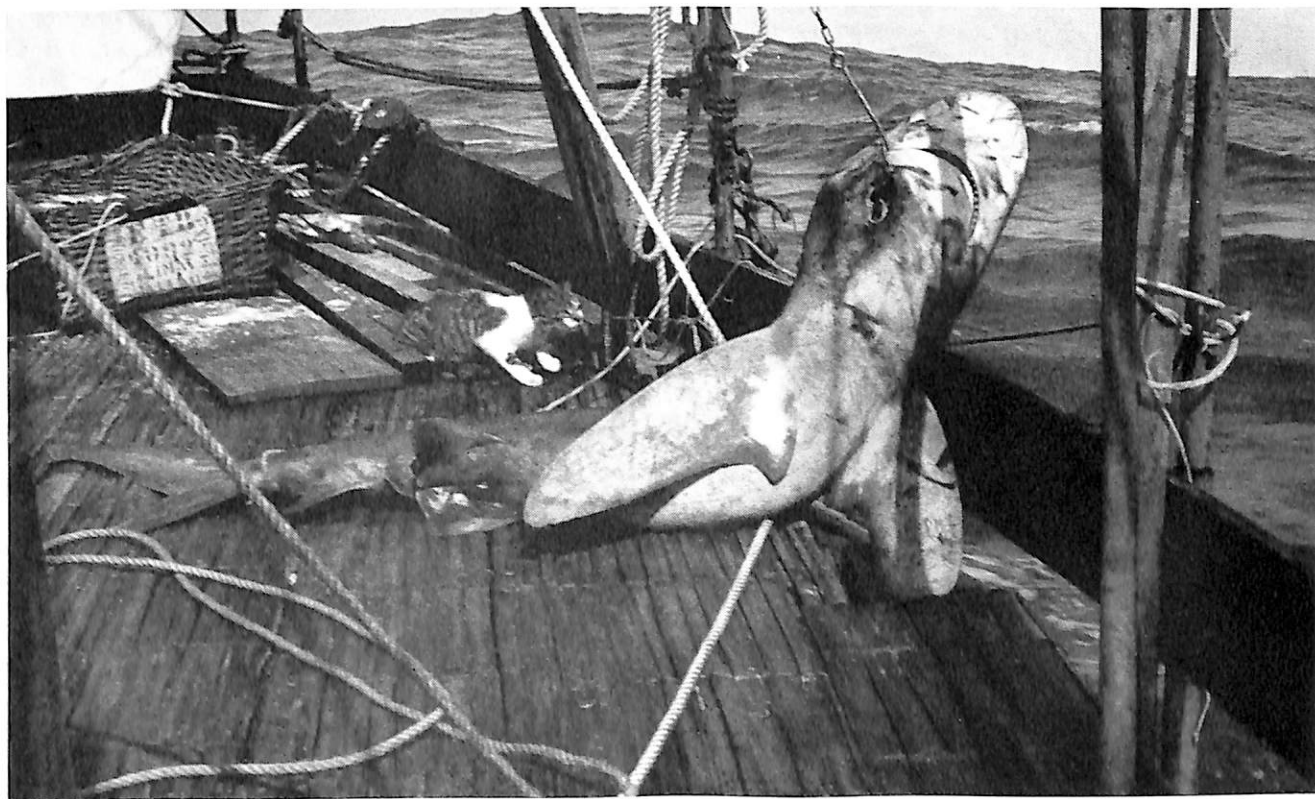
mile trip from Peru to Samoa in the company of a parrot and a cat. At that time, contemplating a book and lecture tour at the completion of his voyage, Willis had carried a Leica and other still and movie cameras along on the raft.

On this trip, he carried the same Leica (a IIIf with 50mm lens), plus a twin-lens reflex camera and 16mm movie camera. He hadn't bothered to have his Leica checked after its first Pacific crossing, since it seemed to be working properly. However, since the second voyage, it had spent another four months at sea, plus receiving 9 years normal usage,

so he brought it in for a check-up. It needed only standard cleaning and lubrication, much as any camera its age might — even if it had merely been in ordinary use.

Any reader contemplating a four-months' raft trip may wonder how Willis protected his film and equipment from the elements. He relates that he packed them in a semi-airtight box acquired from army surplus supplies. He had the films double-wrapped as further protection, and then rewrapped and taped

Willis was, of course, the expedition's photographer. And, as such, he had to devise some method of shutter release so that he could make self-portraits of the "other crewmen." The self-timer alone couldn't time the shutter release to avoid the roll and pitch of the raft. To this end he devised a system of fixing the Leica in place by means of several wooden blocks. A fishing-line-operated lever was rigged which pressed the shutter release and the line was run to the spot where Willis would be standing. This line is visible



DEAD SHARK, to be trailed from stern to scare away other sharks, gets possible-cat-food inspection. Cat settled for flying fish.

up each roll after exposure, re-storing it in the box for the rest of the trip. Although simple, his precautions were effective, and all his films came through satisfactorily.

Using Kodachrome II and Kodacolor X, as well as black-and-white film, Willis exposed more than 50 rolls with his Leica alone, during his voyage. He also shot more than 3,500 feet of 16mm film and some rolls of 120 film, before the shutter on his $2\frac{1}{4} \times 2\frac{1}{4}$ reflex camera succumbed to the rigors of the trip.

In addition to his duties as captain, seaman, deck-hand, navigator and cook of the "Age Unlimited,"

in picture of himself if you scrutinize it, but it is inconspicuous.

to finish the job

At press time, Willis' plans are to complete the journey to Australia which was cut short last year. Hell and high water — both of which he experienced in quantity on his four-months' trip — do not seem to deter this vigorous adventurer from finishing what he starts out to do. When he enters Sydney harbor, his Leica will undoubtedly be along to record the successful end of his adventure.

six dry cells power new Braun F 40

also works on N. C. battery and A. C. power



The new Braun F 40 electronic flash unit, with its black, scuff-resistant plastic fabric covering, is handsome enough to carry with evening wear. Yet, it is rugged enough to be at home in the desert, or on a mountain-top.

Offering 35 watt-second power, the F 40 gives a Kodachrome II guide number of 48. Like other Braun units, its light matches the response of daylight color films and needs no filtering when used with these emulsions. A 65° angle of illumination makes it suitable for use with 35mm wide-angle as well as normal lenses.

powered four ways

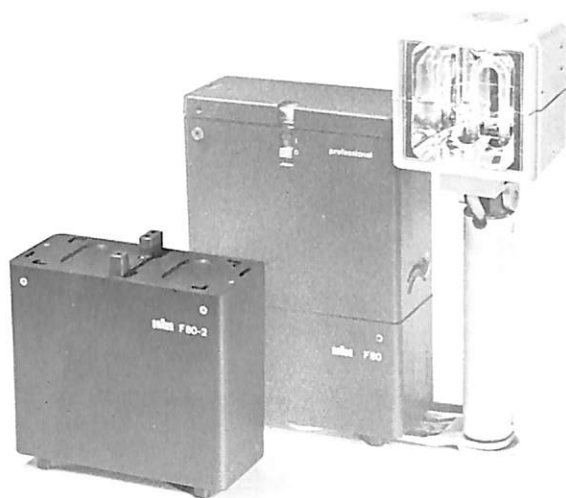
The two-piece F 40 consists of a slim power pack (6¼" x 4¼" x 1¼") which is slung from a shoulder, and a compact flash-head (1½" x 3¼" x 2¼") which fits the camera accessory shoe. The entire unit weighs only 32 ozs. without batteries.

The housing holds either six size "C" dry cells, or a rechargeable nickel-cadmium battery. The connecting cord, which contains the recharger for the nickel-cadmium battery, also converts the F 40 to A.C. operation when desired. For extra-fast recycling, the F 40 can also be operated on battery and A.C. power simultaneously.

Six "C" cells will produce from 150 to 350 flashes, depending on the type and condition of the batteries. Two types which perform well in the F 40 are the Eveready E 93 and the Mallory MN1400.

A single charge of the nickel-cadmium battery will give 60 flashes. Fifteen minutes of recharging will replace enough energy for one flash; 14 hours' charging will completely recharge an exhausted battery. When A.C. alone is used as a power source, flashes are, of course, unlimited in number.

Recycling time (the time from the firing of one flash until the ready-light indicates the unit is again



SUPER-POWER PACK FCR 80-2 stands in front of Braun F 80 unit.

ready to fire) is 9-12 seconds when either dry cells or the nickel-cadmium battery is used. With A.C. alone, it is 18 seconds and with A.C. and battery power combined, only 6-7 seconds.

The F 40 also has the many other sophisticated features that make Braun electronic flash units so popular. Its "monitoring circuit" keeps capacitors charged while the unit is switched on between pictures, yet holds battery drain to a minimum. A built-in neon ready-light shows when the unit is ready to fire, and an open-flash button permits the unit to be fired off-camera. A removable shoe makes it possible to mount the flash-head either vertically or horizontally in the camera accessory clip or on a separate camera bracket.

extension flash

Also available for the F 40 is the new FL 65 extension flash unit. In use, the FL 65 is plugged directly into the polarized socket on top of the F 40 power pack and the cord on the standard flash-head is then attached to the plug of the FL 65. The available power from the F 40 is divided equally between the extension head and the regular flash-head. A 13-foot cord is permanently attached to the FL 65. The new extension head can also be used with the Braun F 65 flash unit.

The F 40, for dry cell operation, complete with power pack and standard flash-head, but less batteries and camera connecting cord, (Cat. No. 15,400) is \$69.50. The nickel-cadmium battery for the F 40, complete with A.C. charger cord (Cat. No. 15,401) is \$34.00; the A.C./charger cord alone (Cat. No. 15,402) is \$11.00. The FL 65 Multiple Flash-Head (Cat. No. 15,473) is \$22.50.

F 80-2 with super-power nickel-cadmium pack

The F 80-2, a deluxe version of the Braun F 80 electronic flash has just been announced. It differs from the F 80 in that its battery pack contains two extra-high capacity nickel-cadmium batteries to give more flashes per charge than does the standard nickel-

cadmium battery pack. The new power pack gives a minimum of 200 flashes per charger on full power and more than twice that on reduced power.

The F 80-2 comes with a special charger cord which will restore full power to exhausted batteries in 14 hours. The A.C. power pack charger FN 80 can also be used to give an 18-hour recharge.

The extra-high capacity nickel-cadmium battery pack and the standard battery pack can be used interchangeably with the generator part of the F 80 flash unit. Thus, owners of the F 80 with the standard nickel-cadmium or wet cell battery pack can convert their units into an F 80-2 simply by substituting the larger battery pack for the original one. The F 80 with standard nickel-cadmium battery or wet cell battery pack will continue to be available.

The new battery pack is 1 $\frac{3}{4}$ " higher and weighs 20 oz. more than the smaller one. Price of the F 80-2 electronic flash unit, complete with large nickel-cadmium power pack and special charger cord (Cat. No. 15,378) is \$260.00. The super-power pack FCR 80-2 alone (Cat. No. 15,398) is \$118.00. The F 80-2 with both nickel-cadmium super-power pack and A.C. power pack (Cat. No. 15,379) is \$283.00.

SPECIFICATIONS		F40	F80-2	
Case Dimensions		1 $\frac{1}{4}$ "x 4 $\frac{1}{4}$ "x 6 $\frac{1}{4}$ "	7 $\frac{3}{4}$ "x 5 $\frac{3}{8}$ "x 2 $\frac{1}{4}$ "	
Total Weight (with battery)		46 ozs.	5 lbs., 4 ozs.	
Color Temperature		Matches Daylight Color Film Balance	Matches Daylight Color Film Balance	
BCPS (Beam Candle-power-seconds)		1350	8000	
Reflector Coverage		Wide-Angle	Adjustable Choice Normal or W/A 60° 80° ¹	
Watt Seconds		—	Full Power Position	Part Power Position
		35	160	40
Guide Number Daylight Kodachrome II		48	104	46°
Flashes per Charge	A.C.	Unlimited	Unlimited	Unlimited
	Wet Cell Battery	(6 "C" Dry Cells) 150-350	120	240
	N/C Battery	60	200	400
Recycle Time	110V. A.C.	18 secs.	12 secs.	2 secs.
	Battery	9-12 secs.	8 secs.	2 secs.
	A.C. & Battery	6-7 secs.	—	—
Extension Flash available		Yes	Yes	
Battery Charger		Separate	Separate†	

¹Guide number for two-position reflector set for normal beam.

1—For 80° wideangle position, allow one stop extra exposure.

†A.C. power pack can also be used for recharging.

D-76 — middle-aged *wunderkind* / Richard W. Vesey

jazz-age developer still a favorite

THE D-76 FORMULA

Dissolve the following Kodak chemicals
in the order given.

Chemicals	Avoirdupois	Metric
Water (at 125F)	24 oz.	750.0 cc
Elon	30 grains	2.0 grams
Sodium Sulphite, desiccated	3 oz., plus 145 grains	100.0 grams
Hydroquinone	75 grains	5.0 grams
Borax, granular	30 grains	2.0 grams
Water to make	32 oz.	1 litre

Throughout the two generations of Leica photography there have appeared many so-called "wonder" developers. But most of them, for a myriad of reasons, have disappeared sooner or later.

One, whose existence parallels the history and success of the Leica, however, has survived the test of years. Since 1928 — eons, photographically speaking — Eastman Kodak Co.'s formula, D-76, has remained unchanged and seldom challenged. It has been used as a standard for evaluation from the era of the Model T right into the space age. And it's still going strong.

But in recent years, the improvements in emulsion technology and manufacture have given us thin-base, high resolution films of all speeds which are a boon to miniature photography. And during this time, D-76 has been somewhat neglected in favor of some new developers which are supposedly "tailored" for these new films. And many of these do a good job. But my first question is always, "Are they better than D-76?"

I am a staff photographer on a medium-sized Midwestern daily newspaper. We consider ourselves pioneers as users of the 35mm camera for general news photography. Since our acceptance of the 35mm format in 1947, D-76 has been our constant friend and companion in the photo lab. We've also used, and occasionally still use, other developers, particularly with slower emulsions.

In general, however, we have found that D-76 performs excellently and has amazing versatility. It often outperforms other formulas, especially under hectic or adverse working conditions.

(Kodak's HC-110 developer, for instance, strongly resembles D-76 in its action, has a faster processing time, can be diluted 1 part stock solution to 15 parts water and used as a throw-away, and is even more economical. But HC-110 does have its drawbacks: it cannot be purchased in small quantities for strictly-occasional processing. And, in our experience, it does not react to time-temperature variations with the consistency of D-76; variations of agitation rates and attendant results are not as controllable or as marked as those from D-76. The developer was designed for larger formats generally, 2¼ by 2¼-inch and up, and it lends itself much more conveniently to a commercial-type operation.)

some performance data

For the past five years we've kept some detailed records of D-76's performance both in our daily work and under some experimental situations.

From these records some interesting conclusions can be drawn:

- D-76, used without dilution and for one time only, can be considered panthermic (not restricted to a single processing temperature).
- D-76 is economical, even when bought in small cans, but particularly if mixed from scratch.
- D-76, used with the medium-high and high-speed films (such as Kodak's Tri-X, Ansco's Hypan, Agfa Isopan Record, or Ilford HPS), offers reasonably fine grain, long tonal scale, and high effective emulsion speeds.
- D-76 has the ability to alter the contrast, gradation and density of a negative in proportion to the rate of agitation during development. (This is, of course, also true of other developers. But D-76's range is greater and more subtle).
- Diluted 1 part water to 1 part developer, D-76 becomes a very economical one-shot. What's more, dilution has a flattening effect upon the contrast. This is particularly helpful in contrasty light, in the higher speed indexes when highlight detail might otherwise block up.

Table I gives the proper development times in D-76 for every degree of temperature between 68F and 85F for Tri-X film (one of our most-used) exposed at an index of 650. We consider 650 "normal" rather than Kodak's official 400 because it gives us a bit higher contrast and a slightly longer tone scale which is essential in newspaper reproduction.

TABLE I: PANTHERMIC EFFECTS OF FULL-STRENGTH D-76 WITH TRI-X FILM*, 650 E.I.

Temperature	Time†	Temperature	Time†
68F	8 minutes	77	4¾ minutes
69	7¾	78	4¼
70	7¼	79	4
71	6¾	80	3¾
72	6½	81	3¼
73	6¼	82	3
74	5¾	83	2¾
75	5½	84	2¼
76	5	85	2

*Figures based on five years of records at Wisconsin State Journal Photo Lab.

†Processing time based on continuous agitation, for the first 30 sec., 5 sec. of each successive minute.

Figures given here are rounded out to the nearest 15 seconds. Theoretically, the ideal processing times may vary about 10 seconds from those actually given here, not enough to affect results significantly, even in the higher temperature ranges.

For an exposure index of 400, cut the chart's processing times 20 percent. For an index of 800, add 20 percent. For an index of 1000, add 40 percent. Higher indexes do not yield negatives of a quality considered acceptable for exhibition prints.

A densitometer shows that these times and temperatures, for all practical purposes, yield constant and predictable results for any given light condition, regardless of the processing temperature used.

Table II gives processing times for other popular American and European films. In all cases manipulation during processing with these emulsions has proven D-76 to be as versatile as it is with Tri-X.

TABLE II: D-76 PROCESSING TIMES* WITH POPULAR 35mm FILMS

Film	Index	Time
Adox KB-14	32	7 min. (1:1 dil.)
KB-17	64	8 min. (1:1 dil.)
KB-21	200	9 min. (1:1 dil.)
Agfa Isopan FF	32	7 min. (1:1 dil.)
F	40	7 min. (1:1 dil.)
SS	125	10 min. (1:1 dil.)
Ultra	400-650	10 min. (Straight)
Record	1600	13 min. (Straight)
Anso Versipan	125	5½ min. (Straight)
Hypan	500	12 min. (1:1 dil.)
Hypan	500	7 min. (Straight)
Ilford Pan F	32	7 min. (1:1 dil.)
FP3	125	9 min. (1:1 dil.)
HP3	400	12 min. (1:1 dil.)
HPS	800	12 min. (Straight)
Kodak Panatomic-X	50	7 min. (1:1 dil.)
Panatomic-X	50	4½ min. (Straight)
Kodak Plus-X Pan	125	7 min. (1:1 dil.)
Plus-X Pan	125	4½ min. (Straight)
Kodak Tri-X Pan	650	11 min. (1:1 dil.)

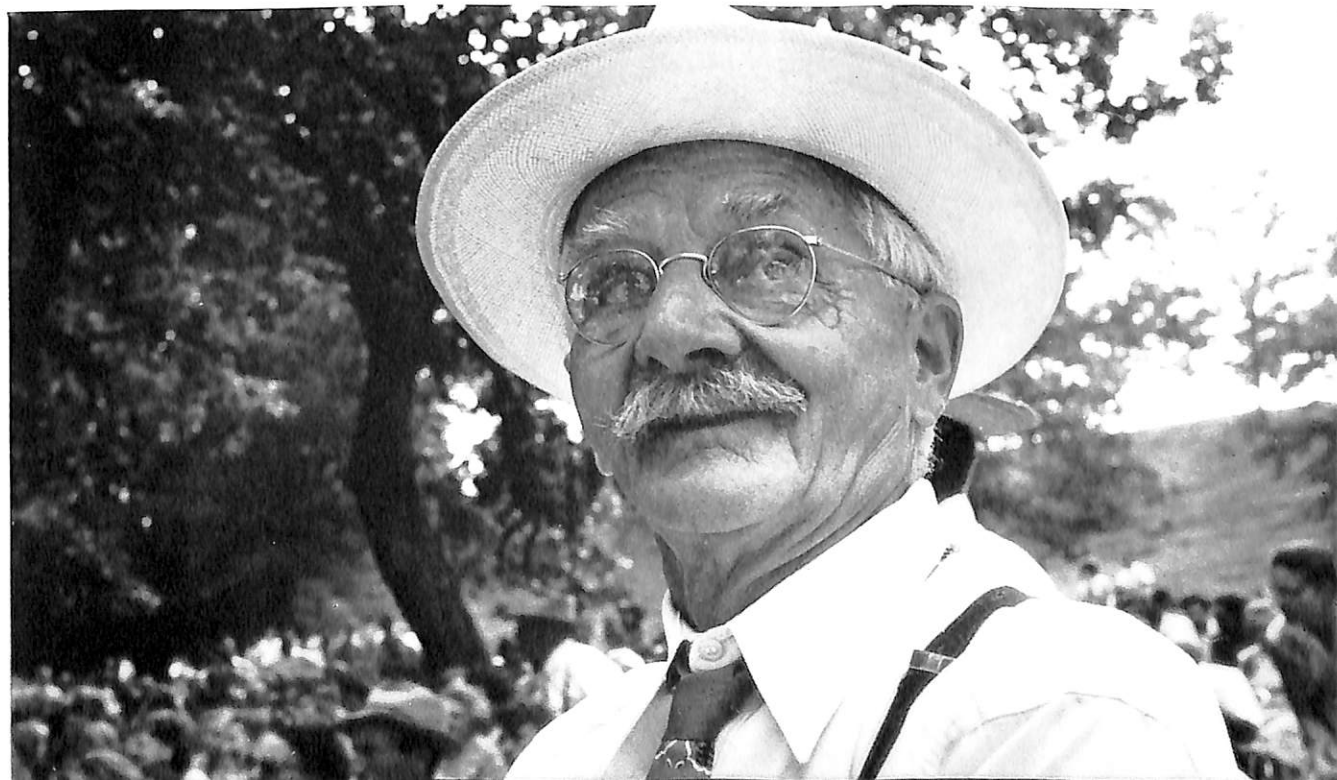
*Processing times given here are for 68F

economy

Some persons claim that to use D-76 without dilution and then dump it down the drain is uneconomical. But this is a matter of opinion. Bought in quart-size cans (the least economical way), D-76 costs 15 cents a roll for processing. But a newspaper which depends on fool-proof methods would not balk even at this cost, as long as the performance is good.

Besides, most large users mix D-76 either from

EXTREME DETAIL and texture are easily rendered by D-76 and Tri-X. Picture is of an early settler near New Glarus, Wisc.





NO GRAININESS showed in large tone areas of 8 x 10 prints.

basic ingredients, or from 10-gallon packages available from Kodak. The mix-your-own cost from bulk chemicals is less than 2 cents a roll. In 10-gallon units the cost is 3.7 cents a roll.

For amateur use, the best compromise appears to be the gallon size, costing \$1.10. This permits you to process up to 16 rolls of film, even when you use D-76 as a full-strength one-shot. The cost is about 7 cents a roll. (If you are a one-roll-at-a-time processor, put your gallon of developer in half-pint bottles. The solution will then keep about six months if you cork the bottles tightly and seal them with wax or tape.)

agitation

Manipulation of agitation of D-76 during processing, using our recommendations, gives predictable results that no other commonly-known developer we've tried can match.

Normal agitation (continuous for the first 30 seconds, and five seconds of each minute for the remaining processing time) will give a gamma of about .65 with Tri-X exposed at an index of 650. Gammas with other films using this agitation rate will be quite similar, except, of course, for the slower films.

The contrast of any film can be increased or decreased the equivalent of one grade of printing paper by altering the agitation rate as follows:

To Increase Contrast: Agitate the film continuously for the first minute and then at 30-second intervals for the remainder of the processing time.

To Decrease Contrast: Agitate the film continuously for the first 15 seconds of processing and then for two or three seconds every minute of the remaining time.

To evaluate the results yourself, take a roll of film and make some test shots using the proper exposure index. Cut the film into three sections of approximately equal length. Process the first section with the recommended time. Process the other two sections using the variations given above.

My technique for agitation is based upon the use of the familiar two-reel stainless steel tank.

I grasp the tank firmly in both hands, lift it gently, turn it upside down and give it a quarter turn with my wrist, (while counting the time for agitation) and then gently set the tank back into the sink.

The only time the tank should be handled "roughly" is at the end of the initial agitation period. Then I rap the tank against the bottom of the sink rather sharply to dislodge whatever small air bubbles may have formed on the side of the film when it was immersed into the solution.

GOOD CONTRAST, even in flat light, is characteristic of D-76.



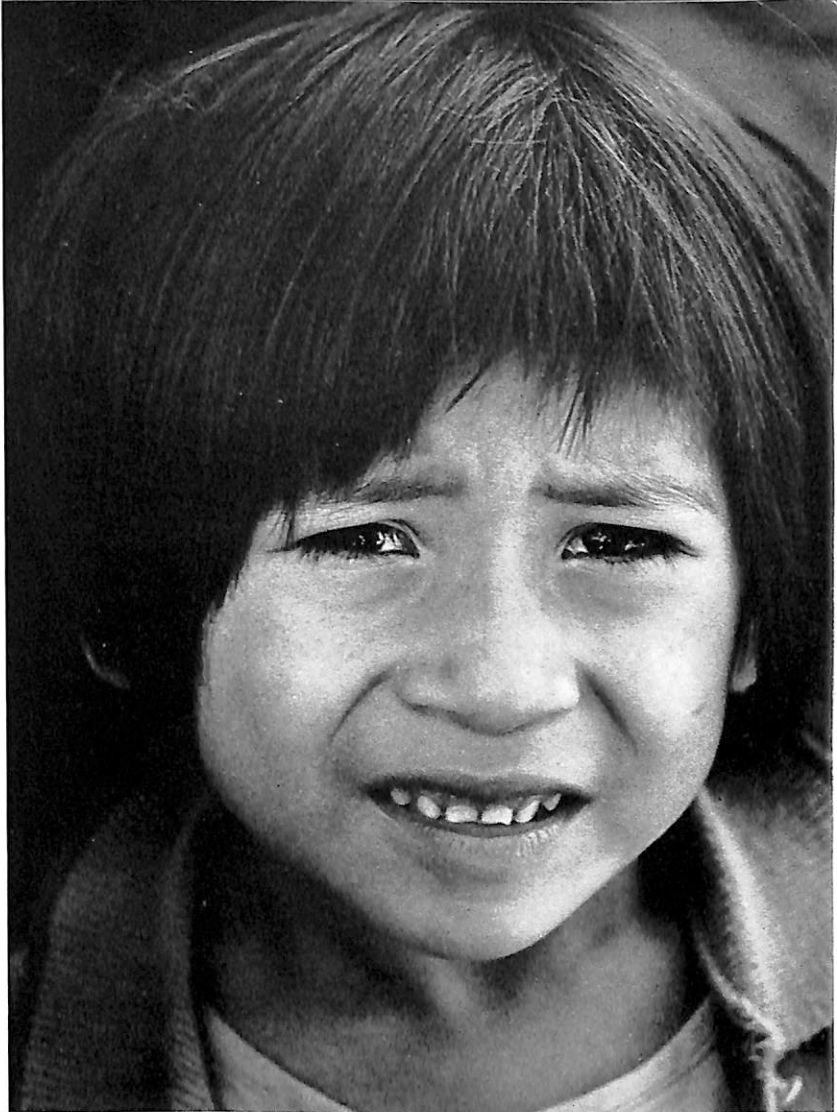
Incidentally, I never pour the developer into a closed tank containing the loaded, dry reels. That invites trouble with air bubbles. Remember, too, that when processing only roll in a two- or four-roll tank, put empty reels into the tank to keep the agitation consistent.

If there's a rule of thumb which assures success in 35mm processing, it is to keep your processing technique consistent. Never vary it, once you have a successful method established.

developer dilution

It has now become a fairly common practice to dilute D-76, 1 part developer to 1 part water for economical processing. But the dilution technique also has some special effects which must be taken into consideration. For instance, processing times do not automatically double just because you dilute the original developer to half its original strength. The general rule is to *increase* processing times in a 1:1 D-76 solution about 40 percent. Conversely, you can keep your original straight-solution processing time by warming the developer 6 degrees F more than is needed for the straight solution. (Warning: These changes in time and temperature are not recommended without prior experimentation because conditions can vary to a great degree from darkroom to darkroom.)

CONTRAST CONTROL possible with D-76 held full-scale details.



TRI-X developed in D-76 is favorite combination of author's.

Furthermore, D-76 diluted 1:1 appears to have a flattening or "compensating" effect upon the contrast. This can, of course, be an asset. It is particularly useful when you know your results will be contrasty because of the lighting under which the pictures were made.

Two other points should be made about modern-day 35mm negative processing which apply to all thin-emulsion films and all developers:

- Thin-emulsion films usually do not require a stop-bath rinse between developer and fixer. A quick but thorough rinse of 15 seconds, in running water, is sufficient.
- Thin-emulsion films also require agitation in the fixing bath, particularly the rapid-type fixers and especially if the fixing solution is old. Otherwise, a severe mottle can result, when portions of the film backing are not cleared. (If this happens, soak the film in water for a few minutes and re-fix it, with the usual final wash following.)

Generally, agitation in the fixing bath should be continuous for the first 30 seconds in the solution and another 15 to 30 seconds half-way through the recommended fixing time.

Leicaman from Lapland / Valerie Stalder

an M3 travels with nomads



Aslak Siri and M3.

A natural law of Lapland, a strange, wild country 300 miles north of the Arctic Circle, is that, where the reindeer go, there must most Lapps go also. For the Lapps' way of life is built around their reindeer, and a man's riches are measured by the number of animals in his herd.

So, the Lapps are tent-dwelling nomads, living here one day, there the next. Their daily life is primitive, their possessions few. A big cooking cauldron, and a primitive brick oven, are found in most Lapp tents. In some, there may be an ancient sewing machine. In a very few, there may be an old battery radio, used to obtain weather reports.

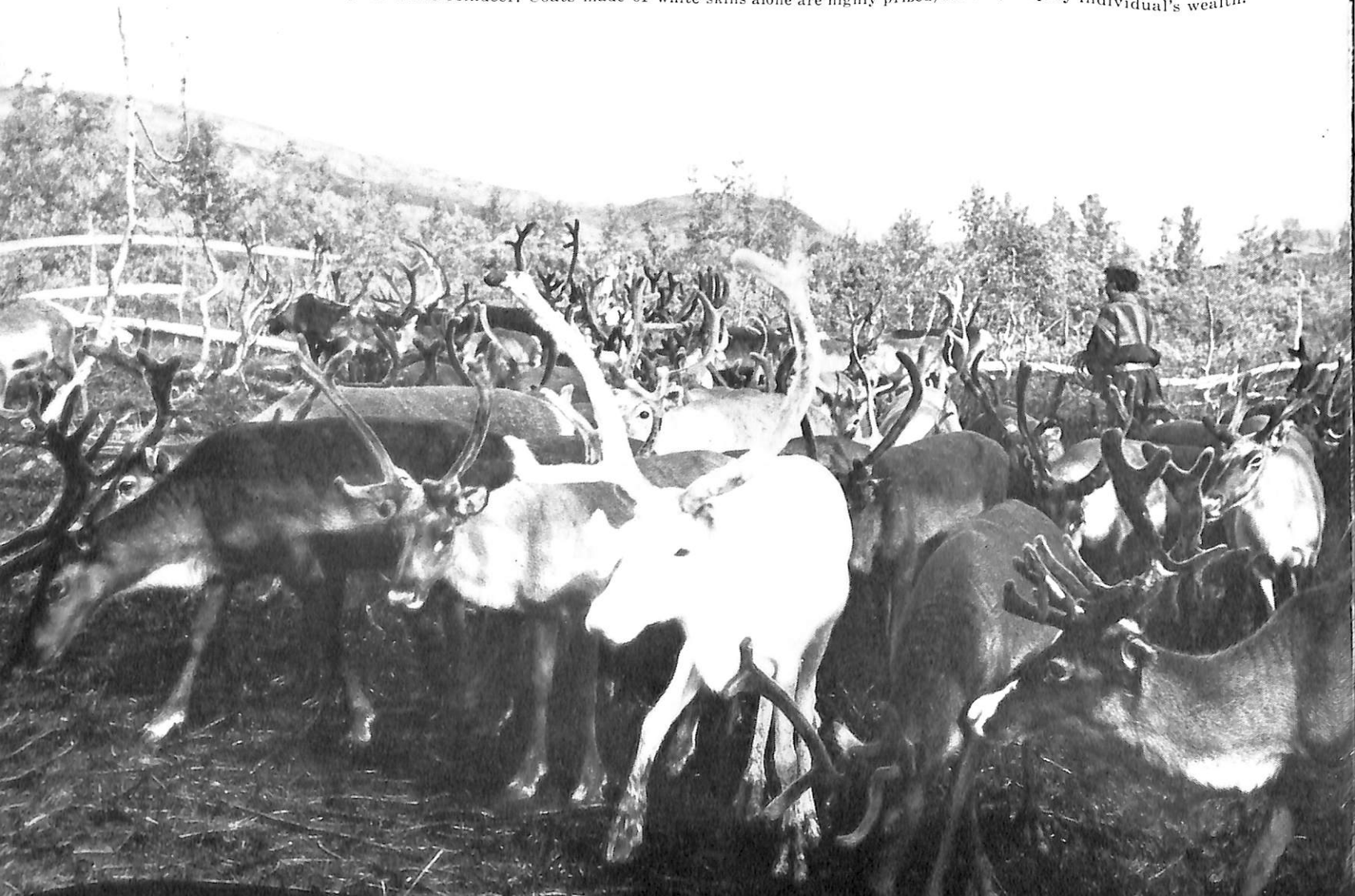
And in the tent of Aslak Haetta Siri there is a Leica M3! For Siri is a Lapp amateur photographer—about as likely a hobbyist as an Eskimo lepidopterist.

He is a truly rare photographic bird, and here's how I found him:

For three years, I was in Lapland, taking pictures of these fascinating people for various European magazines. Very few photographers have specialized on Lapland, since its people live in the most inaccessible places and are often unwilling to be photographed when one has finally found them. But somehow, they liked the idea of a *woman* photographer.

After I had learned Norwegian so that I could talk

LAPP STATUS SYMBOL is pure white reindeer. Coats made of white skins alone are highly prized, for they display individual's wealth.



with them (they talk Laplandish among themselves — Norwegian or Finnish to strangers) — I made friends and was able to take part in some of their customs.

I was lucky enough to be invited to a Lapp wedding, a rather rare event, which takes place only at Easter. The Lapps spend the rest of the year too far from a church.

All weddings take place on the same day at Kautokeino, a Lapp village with a church. Since I had been personally invited by one of the couples getting married, I was allowed to take as many pictures as I wished.

After the ceremony, as one bride and groom stood on the steps of the church with their families and friends, I noticed that I was not the only photographer covering the event.

Lapp Leicaman

Nearby was a Lapp, with a Leica every bit as good as mine!

It was an M3, as is my own. What's more, he showed every indication of knowing how to use it!

I manoeuvred myself up near him in the crowd. The two Leicas were enough introduction, even for a shy Lapp, and we were soon talking photography!

I learned that he owned the largest reindeer herd in Lapland. His entire family was well-off and well-educated. He had attended the Kautokeino School for Lapp children (where he learned to speak Norwegian), and later the Tromsø Vocational School. Very few Lapps are as progressive or have reached a standard as high as his, but chiefly because most of them lack the means.

Also, Lapp traditionalists say that the people should cling to the old ways of their ancestors, continuing as nomads, and having nothing to do with modern progress. These are the majority in Norwegian Lapland.

But there are a few whose lives have already been changed to some degree by modern comforts, conveniences, — and even cameras. Siri was one of these. But he was way ahead of everyone as far as his Leica was concerned. There are very few Lapps, even among the progressive ones, who own cameras at all — and even these have very simple ones.

About his interest in photography, he told me that, as a child, he had painted a great deal — scenes of the Lapp way of life around him. As a young man, he spent a short time in the south of Norway, near Oslo. There he became aware of photography. Staying with non-Lapp friends, he saw their photographs, cameras, and photographic magazines. He continued painting, but began trying to learn the mechanics of cameras.

He started with an old Kodak box camera, then



PORTRAITS of friends are a special hobby of Siri's. To non-Lapps, such pictures often have an ethnological interest, as well.

REINDEER-HORN KNIFE is carved by Lapp craftsman. Lapp photographer recognizes documentary worth of men-at-work photos.





YOUNG WEDDING GUESTS seize rare chance to chat, flirt. All Lapp weddings are held on the same day since nomads have few towns.

went on to a third-hand Argus C3. (I can only suppose that some tourist from America must have given it to the person from whom Aslak Siri obtained it.)

Considerably later, on a visit to Narvik, he acquired an old Leica. And four years later, he graduated to his present model, the M3. He bought it new during a visit to Oslo where he had gone to buy good books on photography. His Leica made him doubly proud — first, for being its owner, and second, because no one else had ever owned it before! His new M3 caused a great stir among the nomads when he brought it along to photograph a relation who was getting married.

Since the day I first met him, a year has passed. He has had time to get used to his camera, and to photograph his family and their activities.

To see how he had progressed, I searched him out again this year and asked him to show me the result of his efforts. Proudly, he showed me dozens of pocket-sized enlargements, made for him by a small photo shop in the Arctic town of Tromsø.

films go "thataway"

I began to wonder whether he was interested in what happened to his films after he took them out of the camera. He told me that, so far, he had never attempted to do his own processing and printing. In a tent which is constantly on the move, and with no running water, how could he?

But it bothered him that he had to send the films to Tromsø by some member of the family who happened to be going there, and then wait for someone else who was going there to pick them up. The whole thing often took several weeks. And the films could not be returned by mail because his nomad's tent had no address.

Proceeding as he was, by trial and error, it upset him that such a long time elapsed before he obtained the results of his experimentation. Very often, the finished picture was not as good as he had thought it would be. And he couldn't tell whether it was his fault or the unknown processor's. The only way to find out would be to be responsible for the whole process himself. He was beginning to consider how he could do his own darkroom work.

Today, he has almost concluded that he will soon have to break with tradition, and set up some kind of small but permanent dwelling where he could be for at least some small part of the year.

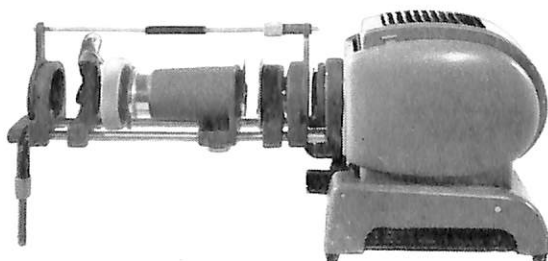
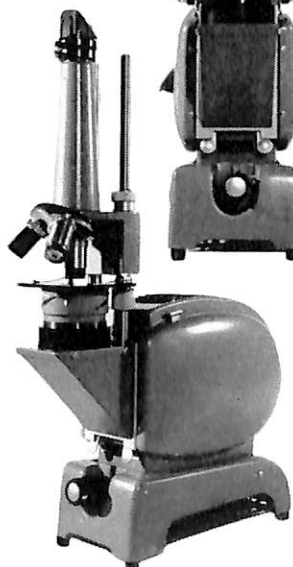
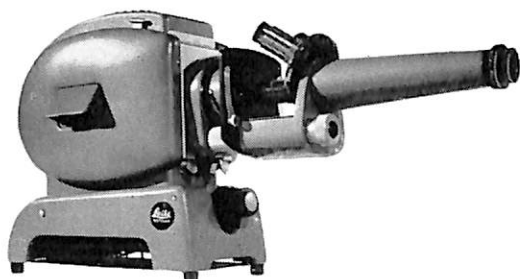
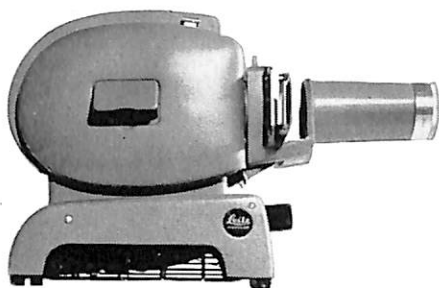
Photographically speaking, he is still in the first stages of photographic competence. His pictures are records of what he has seen around him. He has not yet begun any interpretative photography.

Perhaps he never will. But it is still too soon to say. It is possible that, with time and experience, he will go on to become a real artist of the lens.

Presently, Siri carries many small prints of his negatives with him in his travels. Some he gives away, as and if he meets his photographic subjects.

His negatives are stored with a non-nomadic Lapp friend who lives in a permanent dwelling in Kautokeino. (Nomadic Lapps, who own reindeer herds and travel with them are the aristocrats of the country. Those who cannot afford herds are usually fishermen or hunters and live in one spot.)

If he goes through with his tradition-breaking plans for a permanent darkroom of his own, Siri may have a tremendous incentive for improvement. It will be interesting, perhaps in a few years' time, to see whether the creative urge of photography will overcome the age-old pressures of the Lapp way of life.



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